AP Stat: Ch. 22 Notes NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example:** Do men and women wear seatbelts the same % of the time? In order to find out, we take an SRS of 200 male drivers and another SRS of 250 female drivers. We find that there are 146 men that wear their seatbelts regularly and 203 women that wear them regularly. Is there a significant difference between the two genders? What is the difference (if any)?

**2 Proportion Interval and Test:**

We can create a confidence interval for the difference between 2 proportions

**Conditions:** (double the ones for one proportion)

* Since the Normal model is being used, we need a mean and std. deviation (std. error)

Mean:

Std. Error:

**Confidence Interval Formula:**

**Conclusion:**

* How would we know if the 2 proportions are the same? What would the difference be?

***Example:***

College students were randomly selected and asked about how much alcohol they consumed on a weekly basis. Over a certain amount of alcohol consumed was considered binge drinking. Out of 5348 males surveyed, 1392 were identified as binge drinkers. Out of 8471 females surveyed, 1748 were identified as binge drinkers. What is the difference in the proportions of male and female binge drinkers? Use 95% confidence.

**2-Proportion Z-Test:**

We can compare 2 proportions together.

**Hypotheses:**

**Conditions:**

**Mechanics:**

* Recall Ho: p1 = p2
* We must assume that…
* So if p1 = p2, then we should…
* This is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* p1 = p2 =
* Pooled = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mean:

Std. Error (pooled):

Test Statistic:

P-Value: SAME!

**Conclusion:**

***Example:*** Back to the example from the beginning: Do men and women wear seatbelts the same % of the time? In order to find out, we take an SRS of 200 male drivers and another SRS of 250 female drivers. We find that there are 146 men that wear their seatbelts regularly and 203 women that wear them regularly. Is there a significant difference between the two genders?

**Example: p. 521 #24**

**Book Problems: p. 519 #4, 9, 17, 19, 23**